MATERIAL SAFETY DATA SHEET

Boehringer Ingelheim Pharmaceuticals, Inc.
Consumer Healthcare Products
900 Ridgebury Rd
Ridgefield, CT 06877

Zantac Maximum Strength 150 mg Tablets

DATE ISSUED: October 24,2007

EMERGENCY TELEPHONE NUMBER
CHEMTREC – 24 Hours
1-800-424- 9300

1. SUBSTANCE IDENTIFICATION

CHEMICAL NAME: Trade Secret

GENERIC NAME: Ranitidine hydrochloride tablets

MOLECULAR FORMULA: $C_{13}H_{22}N_4O_3S$•HCl

MOLECULAR WEIGHT: 350.87

CAS NUMBER: 66357-59-3

TRADEMARK: Zantac ®

CHEMICAL FAMILY:

PRODUCT USE: Relief and prevention of heartburn

SYNONYMS: Ranitidine hydrochloride tablets

2. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

Physical State: 150 mg Dark Pink Tablets
Low hazard if taken as directed
Keep out of reach of children

Potential Health Effects Product:

CONTRAINDICATIONS: Patients known to have hypersensitivity to the drug or any of its ingredients. Symptomatic response to therapy with Zantac does not preclude the presence of gastric malignancy. Zantac is excreted primarily by the kidney; dosage should be adjusted in patients with impaired renal function. Caution should be observed in patients with hepatic dysfunction since Zantac is metabolized in the liver. Rare reports suggest that Zantac may precipitate acute porphyric attacks in patients with acute porphyria. Zantac should therefore be avoided in patients with a history of acute porphyria.

ADVERSE REACTIONS TO PRODUCT: Headache, Constipation, Diarrhea, Nausea/Vomiting, abdominal discomfort/pain. In rare circumstances malaise, dizziness, somnolence, insomnia, vertigo, skin rashes, hypersensitivity, and tachycardia

WARNINGS:

If pregnant or breast feeding, ask a doctor before use
Do not use if you have trouble or pain swallowing food, vomiting with blood, or bloody or black stools
Do not use with other acid reducers
Do not use if you have a kidney disease, except under the advice and supervision of a doctor
May interact with other drugs.

OVERDOSAGE:
There has been limited experience with over-dosage. Reported acute ingestions of up to 18 grams orally have been associated with transient adverse effects similar to those encountered in normal clinical experience. In addition, abnormalities of gait and hypotension have been reported.

ROUTES OF ENTRY: Ingestion

ACUTE EXPOSURE:

INHALATION: Not expected to be an inhalation hazard

EYE CONTACT: Not expected to be a hazard to the eye

SKIN CONTACT: Occupational exposure has indicated that ranitidine is a skin sensitizer. Occupational exposure has resulted in rhinitis, conjunctivitis, dry irritable cough, nasal congestion, sneezing and wheezing. Based on these findings, ranitidine is capable of causing occupational asthma.

INGESTION: Low hazard, if taken as directed. May cause Headache, Constipation, Diarrhea, Nausea/Vomiting, abdominal discomfort/pain.

CHRONIC EXPOSURE: Not determined for this product

TARGET ORGANS: Gastrointestinal Tract

MEDICAL CONDITIONS POTENTIALLY AGGRAVATED BY EXPOSURE: May cause Gastrointestinal disorders

CARCINOGENICITY: Not listed as carcinogen or potential carcinogen by NTP, IARC Monographs or OSHA. Titanium Dioxide: IARC 2B (possibly carcinogenic to humans)

3. COMPONENTS PER UNIT DOSE

MATERIAL	WEIGHT Mg/Tablet	CAS Number	EXPOSURE LIMITS
Active Ingredient:			
Ranitidine Hydrochloride	168	66357-59-3	500µg/M^3 - TWA
Excipients:			

Microcrystalline Cellulose	Trade Secret	9004-34-6	10 mg/M^3 – Total Dust 5 mg/M^3 – Respirable Fraction
Magnesium Stearate	Trade Secret	557-04-0	ACGIH 8-Hr TLV-TWA 10 mg/M^3 (Generic group name: Stearates)
Top Coating:			
Opadry Pink YS-1-14756-A	Trade Secret	Not Established	Not Established

4. EMERGENCY FIRST AID PROCEDURES

Persons developing anaphylactic (life-threatening) reactions, such as, difficulty in breathing or unconsciousness, must receive immediate medical attention.

Product:

INHALATION: Should not pose a hazard in final form. Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

EYE CONTACT: Should not pose a hazard in final form. Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses, if worn. Get medical attention.

SKIN CONTACT: Should not pose a hazard in final form. Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention.

INJECTION: Should not pose a hazard in final form. In case of accidental injection of crushed tablets, wash and thoroughly disinfect. Get medical attention.

INGESTION: Call physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person Get immediate medical attention.

5. FIRE AND EXPLOSION HAZARD DATA

	Flammable Limits	
Flash Point	**Upper**	**Lower**
Not Applicable	Not Applicable	Not Applicable

FIRE EXTINGUISHING MEDIA: Water spray, dry chemical, carbon dioxide or foam as appropriate for surrounding fire and materials.

SPECIAL FIRE FIGHTING PROCEDURES: As with all fires, evacuate personnel to safe area. Firefighters should use self-contained breathing equipment and protective clothing. Use water spray to keep fire-exposed containers cool and protect against all exposures.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Ranitidine HCl may decompose exothermically at temperatures in excess of 70^{o}C

6. SPILL AND ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF SIGNIFICANT QUANTITIES OF TABLETS ARE BROKEN: Wear approved respirator, eye protection and chemically compatible gloves if containers have been compromised. Vacuum or sweep up spillage. Avoid creating dust. Place spillage in appropriate container for waste

disposal. Wash contaminated clothing before reuse. Ventilate area; wash down spill site and control wash water. Wash contaminated clothing separately before re-use.

7. PRECAUTIONS FOR SAFE HANDLING AND USE

HANDLING AND STORAGE PRECAUTIONS: Avoid the formation of dust. Store tablets in tight container. Store tablets away from foodstuffs. This material should be handled and stored as per label and other instructions to ensure product integrity. The recommended temperature range for storage is 68 to 77^{o}F or 20 to 25^{o}C.

STEPS TO BE TAKEN IN CASE MATERIAL IS SPILLED ORRELEASED: Wear approved respirator, eye protection, personal protective coverings and gloves. Use HEPA filtered vacuum or wet sweeping to clean up spillage. Avoid creating dust. Place spillage in appropriate container for waste disposal. Wash contaminated clothing before reuse. Ventilate area and wash spill site.

OTHER PRECAUTIONS: Avoid contact with eyes, skin or clothing. Avoid breathing dust or mist. Use with adequate dust control and local ventilation. Wash hands thoroughly after handling. Wear fresh clothing daily.

8. CONTROL MEASURES

ENGINEERING CONTROLS: Not generally required when handling containers or tablets. (See Section 3 for exposure control limits.) Good ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If operations involve crushing or other processes that release powder, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.

RESPIRATORY PROTECTION: Not generally required when handling containers or tablets. The need for respiratory protection should be determined by an Industrial Hygiene Survey. (See Section 3 for exposure control limits.). NIOSH/MSHA approved respirators for protection should be used if respirators are found to be necessary.

PERSONAL PROTECTIVE EQUIPMENT: Not generally required when handling containers or tablets. If containers are compromised or exposure to the active ingredient or mixture is likely; wear:

- Safety Glasses or Goggles
- Protective Coveralls
- Rubber Gloves
- Appropriate respiratory protection, if Occupational Exposure Limits are exceeded

WORK/HYGIENIC PRACTICES: Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at end of work shift. Do not permit eating, drinking or smoking near this material.

9. PHYSICAL/CHEMICAL CHARACTERISTICS

APPEARANCE AND ODOR: Dark Pink Tablet – 150 mg

Boiling Point: Not Determined
Vapor Pressure (mm Hg): Not Determined
Vapor Density: Not Determined
Water Solubility: Not Determined
Specific Gravity: Not Determined
Melting Point: Not Determined
Evaporation Rate: Not Determined
Volatiles, %: Not Determined

10. REACTIVITY DATA

STABILITY: Tablets are stable under normal conditions of use
CONDITIONS TO AVOID: High Temperatures
INCOMPATIBLE MATERIALS: None known
HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Oxides of carbon, nitrogen, sulphur, and hydrochloric acid.
HAZARDOUS POLYMERIZATION: Will not occur

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:

Compound	Type	Route	Species	Result
Ranitidine hydrochloride	LD_{50}	Oral	Rat	>1000 mg/kg
Microcrystalline Cellulose	LD_{50}	Oral	Rat	>5000 mg/kg
	LD_{50}	Dermal	Rabbit	>2000 mg/kg
	Irritation	Occular	Rabbit	Non-irritating
	Irritation	Dermal	Rabbit	Non-Irritating
Magnesium Stearate	LD_{50}	Oral	Rat	>2000 mg/kg
	LC_{50}	Inhalation	Rat	>2000 mg/M^3

EYE: May cause eye irritation based on components

SKIN: May cause skin irritation based on components

INHALATION: May cause respiratory tract irritation based on components

INGESTION: In humans acute ingestion of up to 18 grams has been associated with only transient adverse effects

SENSITIZATION: Occupational exposure to ranitidine has resulted in skin sensitization and occupational asthma. It was negative topically when tested in guinea pigs but weakly positive in the guinea pig optimization test.

CHRONIC EFFETS: Repeated Oral administration of ranitidine to rats has resulted in hyperplastic changes to the stomach, leading to adenoma and carciniod formation, considered to be secondary to compensatory hypergastrinemia produced by extremely high doses of ranitidine. Ranitidine showed no evidence of carcinogenicity in life-span studies in mice and rats at doses of uo to 2000 mg/kg/day.

TERATOGENICITY: **PREGNANCY CATEGORY B**, Reproduction studies have been performed in rats and rabbits at doses up to 160 times the human dose and have revealed no evidence of impaired fertility or harm to the fetus due to ZANTAC. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers: ZANTAC is secreted in human milk. Caution should be exercised when ZANTAC is administered to a nursing mother.

CARCINOGENESIS/MUTAGENISIS: Not listed as carcinogen or potential carcinogen by NTP, IARC Monographs or OSHA. Titanium Dioxide: IARC 2B (possibly carcinogenic to humans)

12. ECOLOGICAL INFORMATION

The environmental characteristics of this mixture have not been fully evaluated. Releases to the environment should be avoided.

Aquatic Toxicity

Compound	Type	Species	Results
Ranitidine Hydrochloride	EC_{50}/48hr	Daphnia magna	730mg/l
	EC_{50}/3hr	Activated sludge	>1000 mg/l
	EbC_{50}	Algae	150 mg/l
	ErC_{50}	Algae	>160 mg/l
	EC_{50}/14 day	Rainbow trout	>100 mg/l

Note: A greater than (>) symbol indicates that acute ecotoxicity was not observed at the maximum at the maximum solubility. Since the substance is insoluble in aqueous solutions above this concentration, an acute ecotoxicity value (i.e. LC/EC_{50}) is not achievable.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL CONSIDERATIONS: Dispose of in accordance with local, state and federal regulations. Recommended method is incineration.

14. TRANSPORT INFORMATION

Product:

This product is not subject to the regulations for safe transport of hazardous materials.

DOT: Not Regulated
TDG: Not Regulated
IATA: Not Regulated
IMDG: Not Regulate
EUADR: Not Regulated

15. REGULATORY INFORMATION

CANADIAN CONTROLLED PRODUCTS REGULATION: This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations, Section 33, and the MSDS contains all required information

WHMIS CLASSIFICATION FOR ACTIVE INGREDIENT: Controlled, D2B

WHMIS CLASSIFICATION FOR PRODUCT: Non-controlled, exempt

INVENTORY STATUS: This material is **not** listed on the US TSCA Inventory. Therefore,it can only be used for TSCA Exempt purposes, such as R&D or drug use

This material is not listed on the DSL Inventory.

C EU Classification: Harmful; Irritant

Active Material - EU Labeling: Xn

Active Material - Risk Phrases: R42/43 – May cause sensitization by inhalation or skin contact

Active Material - Safety Phrases:
S22 - Do not breath dust
S24 - Avoid contact with skin
S36 - Wear suitable protective clothing
S45 - In case of accident or if you feel unwell seek medical advice immediately

16. OTHER INFORMATION

ABBREVIATIONS:
N/E: Not Established
N/A: Not Applicable
N/D: Not Determined

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REFERENCES

Electronic PDR
Manufacturer's MSDS
Sax's Dangerous Properties of Industrial Materials – Ninth Edition